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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Jörg Lawrenz-Stolz

Appln. No.: 09/283,169

Filed: April 1, 1999

For: AN ASSEMBLY FOR FOCUSING AND
COUPLING THE RADIATION
PRODUCED BY A SEMICONDUCTOR
LASER INTO OPTICAL FIBERS

Group Art Unit: 2874

Examiner: H. Sanghavi

TRANSMITTAL OF REPLY
BRIEF IN RESPONSE TO
EXAMINER'S ANSWER

2001 Ferry Building
San Francisco, CA 94111
415/433-4150

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Commissioner for Patents
Box AF
Washington, D.C. 20231

Sir:

Enclosed is a Reply Brief in Response to Examiner's Answer
accompanied by the fee of \$310.00 in accordance with 37 CFR 1.17(c).

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Respectfully submitted,

LIMBACH & LIMBACH L.L.P.

Dated: October 19, 2000

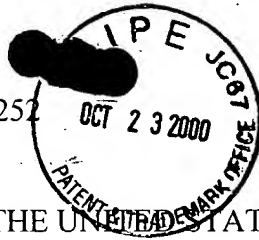
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Attorney Docket No. COHD-3252



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**REPLY BRIEF IN RESPONSE TO
EXAMINER'S ANSWER**

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LIMBACH & LIMBACH LLP

Date: 10/19/00

By: *Hanna M. Dean*

Box AF

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This is a Reply Brief in response to the Examiner's Answer mailed
August 31, 2000 in the above identified application.

I. Related Appeals and Interferences

Page 1 of the Answer states that the Appeal Brief does not contain a
statement identifying the related appeals and interferences, and that it is
presumed that there are none. Please note that page 1 of Applicant's Appeal
Brief states "There are no related appeals or interferences."

II. Grouping of the Claims

Page 2 of the Answer states the Appeal brief does not include a
statement that the grouping of claims 10, 12 and 14-21 does not stand or fall
together. Please note that page 3 of Applicant's Appeal Brief states "The
claims all stand or fall together."

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III. Response to Examiner's Argument

The Applicant respectfully traverses several statements and conclusions set forth in the Answer.

On page 5, the Examiner concludes "Thus, the d'Auria et al discloses substantially all claimed limitations, but fails to disclose a bead of glue used to attach the lens to the fibers." The Applicant respectfully traverses the conclusion that d'Auria discloses "substantially all claimed limitations". Each of claims 10, 15 and 19 recite the cylindrical lens (optical fiber) "being attached *directly* to the light entrance side of each of the optical fibers". In contrast, the optical coupling fiber 3 and transmission fiber 2 in d'Auria are positioned by dowels 52-55, and attached to substrate 4. These elements are clearly not directly attached to each other (Col. 3, lines 46-55). The Examiner goes on to note that d'Auria discloses the use of a liquid drop between the lens fiber and the transmission fiber. This does not change the fact, however, that the optical fibers of d'Auria are mounted to the substrate, not each other. It is respectfully submitted that attaching both fibers 2 and 3 to a substrate does not disclose the cylindrical lens "being attached *directly* to the light entrance side of each of the optical fibers", even though the coupling fiber 3 of d'Auria abuts the face of transmission fiber 2 when both these fibers are mounted onto the substrate.

The claims further recite that the attachment of the lens and transmission fibers is "independent of the holder." In contrast, the d'Auria device specifically relies on the substrate (holder) for holding the lens relative to the transmission fibers, and therefore clearly fails to meet the limitation that the lens and optical fibers are attached independent of the substrate.

On page 5 of the Answer, the Examiner concludes that it would have been obvious to use a bead of glue as taught by Dakss for attaching the fibers to the coupling lens for the purpose of "efficiently coupling laser radiation from the laser diode array and avoiding the problem of misalignment by increasing mechanical strength of the device". The Applicant respectfully disagrees. There is no apparent support for the conclusion that adding a bead of glue to the d'Auria device, in addition to the drop of refractive matching liquid already

used in d'Auria, would increase in any way the efficiency of the laser radiation coupling, as suggested by the Examiner. Deficiencies in the factual basis cannot be supplied by resorting to speculation or unsupported generalities. *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967). Note also *In re Freed*, 425 F.2d 785, 165 USPQ 570 (CCPA 1970). Moreover, there is no apparent suggestion for the need to add mechanical strength to the d'Auria device, given that the device already uses dowels to rigidly hold the fibers in place. Nor is it clear that adding glue over the refractive matching liquid would achieve any needed increase in mechanical strength. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); MPEP §2143.01. Applicant respectfully submits there is no need or suggestion to add glue to the d'Auria device as suggested by the Examiner.

On pages 5-6 of the Answer, the Examiner identifies the following claim language as "product-by-process", which can allegedly be ignored when determining the issue of obviousness based upon the product itself:

"said cylindrical lens being attached directly to the light entrance side of each of the optical fibers using a bead of glue in a manner to self center and align the cylindrical lens with respect to the light entrance sides independent of the holder"

Yet, attaching the cylindrical lens "**directly** to the light entrance side of each of the optical fibers" is directed to the structure (i.e. the attachment between two parts) of the end product. Additionally, such an attachment "independent of the holder" is also directed to the structure of the product. As stated above, d'Auria fails to teach such a direct structural attachment, and one that is independent of the holder.

On page 7, in response to Applicant's argument that the gluing step of Dakss does not address any apparent deficiency in d'Auria's lens/fibers aligned by the reference face, dowels and shims, the Examiner notes that d'Auria uses glue to hold the fibers to the reference face of the substrate, and that lines 55-57 of column 4 of d'Auria discloses another method that discards positioning dowels 54/55, whereby "there is a desirability in the d'Auria et al device to

attach the coupling lens using drops of adhesive”, and “to attach the coupling fiber without using positioning dowels”. However, it must be noted that the alignment of the lens and fibers is performed structurally using the dowels. The glue simply keeps the lens and fibers secure against the substrate, without any suggestion of using glue to directly attach the lens to the fibers. More importantly, the alternate embodiment of d’Auria referenced by the Examiner relates to the use of a parallelepiped block 6 shown in Fig. 6 to mechanically abut and position the lens instead of using dowels. Again, the focus of the d’Auria reference is the use of structural elements such as dowels or blocks to physically abut against and position the fibers. There simply is no suggestion or apparent need to use glue to directly attach together elements already structurally held in place.

On page 8, the Examiner concludes that the use in the d’Auria device of a transparent liquid between the coupling fiber and the transmission fibers “further motivates” the ordinary artisan to provide a drop of glue between the fiber and the transmission fibers as shown by Dakss et al. Yet, there is no explanation on why use of the refractive matching liquid of d’Auria would “motivate” one to use a drop of glue, especially since the refractive matching liquid is already disposed between the lens and fibers.

On page 9, in response to Applicant’s point that one in the art would not be motivated to add glue in the manner suggested by the Examiner because it would stress the fibers and lens, the Examiner simply states that adding glue to the d’Auria device increases mechanical strength and avoids transverse misalignment. However, this ignores other considerations that would affect the motivations of one in the art. Specifically, one in the art would take into consideration that the d’Auria device uses mechanical positioning along the length of the fibers, whereas Dakss uses glue to attach the fibers and lens at the points of contact. One in the art would not be motivated to combine these two techniques because the mechanical support (dowels and substrate) and the fibers have different thermal expansion coefficients, whereby stress would be added to the fibers and lens through the multiple points of contact as ambient temperature changes. Therefore, it is respectfully submitted that one in the art

would not be motivated to combine the mechanical positioning of d'Auria with the point of contact positioning of Dakss.

Lastly, on page 9, the Examiner states the modified device (Dakss glue added to d'Auria device) would be less expensive to produce. The Applicant respectfully traverses this conclusion. It is unclear to Applicant how the addition of a new manufacturing step, especially one that addresses no apparent need, somehow reduces expense relative to simply not adding the unneeded step in the first place.

It is therefore respectfully submitted that claims 10, 15 and 19 (and claims 12, 14, 16-18 and 20-21 dependent thereon) are not rendered obvious by the cited prior art, and a holding to that end by the Board is respectfully requested.

Respectfully submitted,

LIMBACH & LIMBACH L.L.P.

Dated: Oct. 19, 2000 By: Alan A. Limbach

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Attorney Docket No. COHD-3252